

What is claimed is:

1. A method for use in a wavetable based sound synthesis  
5 for which encoded wavetable data is decoded by means  
of an audio decoder on a frame-by-frame basis, each  
frame comprising at least one sample, wherein said  
encoded wavetable data comprises samples in an attack  
10 section and samples in a loop section, which samples  
of said loop section may be reused for a playback in  
a loop as often as required, said method comprising:
  - a) decoding consecutive frames of said wavetable  
data starting with a first frame up to a frame which  
includes a start of said loop section;
  - 15 b) saving an internal state of said audio decoder  
before starting to decode said frame including the  
start of said loop section;
  - c) decoding subsequently all frames comprising  
samples of said loop section and providing said  
decoded frames for further processing for a playback;  
20 and
  - d) at least if said samples of said loop section  
are distributed to more than one frame, restoring  
said internal state of said audio decoder, saved at  
25 step b), and continuing with step c) as often as  
required.
2. The method according to claim 1, wherein each decoded  
frame is stored for said further processing by  
30 substituting a preceding frame in a storage  
component, and wherein a respective next frame is  
only decoded at a time when samples of a further  
frame are needed.

3. A device comprising:

an audio decoder decoding received wavetable data on a frame-by-frame basis, each frame comprising at least one sample, wherein said encoded wavetable data may comprise samples in an attack section and samples in a loop section, which samples of said loop section may be reused for a playback in a loop as often as required;

10 a storage component for saving an internal state of said audio decoder; and

a controller, which controller causes said audio decoder to save an internal state of said audio decoder into said storage component before decoding a next frame, if said next frame includes a start of a loop section, which controller causes said audio decoder to decode subsequently all frames comprising samples of said loop section and to provide said decoded frames for further processing for a playback, and which controller causes said audio decoder as often as required to restore said internal state saved in said storage component and to repeat decoding subsequently all frames comprising said samples of said loop section.

25 4. The device according to claim 3, further comprising a second storage component for storing the respective last decoded frame provided by said audio decoder and for providing samples of a respectively stored frame for further processing for a playback.

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5. A wavetable based sound synthesis system comprising:  
a first storage component for storing encoded wavetable data;

an audio encoder for encoding a wavetable on a frame-by-frame basis and for storing resulting wavetable data in said first storage component;

5       an audio decoder decoding wavetable data provided by said first storage component on a frame-by-frame basis, each frame comprising at least one sample, wherein said encoded wavetable data may comprise samples in an attack section and samples in a loop section, which samples of said loop section may be  
10      reused for a playback in a loop as often as required;

          a second storage component for saving an internal state of said audio decoder; and

15      a controller, which controller causes said audio decoder to save an internal state of said audio decoder into said storage component before decoding a next frame, if said next frame includes a start of a loop section, which controller causes said audio decoder to decode subsequently all frames comprising samples of said loop section and to provide said  
20      decoded frames for further processing for a playback, and which controller causes said audio decoder as often as required to restore said internal state saved in said storage component and to repeat decoding subsequently all frames comprising said  
25      samples of said loop section.

6. A software program product in which a software code for supporting a wavetable based sound synthesis is stored, for which wavetable based sound synthesis  
30      encoded wavetable data is decoded by means of an audio decoder on a frame-by-frame basis, each frame comprising at least one sample, wherein said encoded wavetable data may comprise samples in an attack section and samples in a loop section, which samples

of said loop section may be reused for a playback in  
a loop as often as required, said software code  
realizing the following steps when running in a  
processing component which is connected to said audio  
decoder:

causing said audio decoder to save an internal  
state of said audio decoder before decoding a next  
frame, if said next frame includes a start of a loop  
section;

causing said audio decoder to decode subsequently  
all frames comprising samples of said loop section  
and to provide said decoded frames for further  
processing for a playback; and

causing said audio decoder as often as required to  
restore said saved internal state and to repeat  
decoding subsequently all frames comprising said  
samples of said loop section.

7. A method for use in a wavetable based sound synthesis

for which wavetable data is encoded for storage by  
means of an audio encoder on a frame-by-frame basis,  
each frame comprising more than one sample, wherein  
said wavetable data comprises samples in an attack  
section and samples in a loop section, which samples  
of said loop section may be reused for a playback in  
a loop as often as required, said method comprising:

distributing, in this order, a certain number of  
padding samples, said samples of said attack section  
and said samples of said loop section to a sequences  
of frames, wherein said certain number of padding  
samples is selected such that all samples of said  
loop section are included in a single frame in case  
said loop section comprises less samples than a  
respective frame; and

encoding said sequence of frames.

8. A device including an audio encoder for encoding received wavetable data on a frame-by-frame basis, each frame comprising more than one sample, wherein said wavetable data may comprise samples in an attack section and samples in a loop section and wherein samples of such a loop section may be reused for a playback in a loop as often as required, said audio encoder comprising:

10           a distributing component distributing, in this order, a certain number of padding samples, samples of an attack section of received wavetable data and samples of a loop section of received wavetable data to a sequences of frames, in case said received wavetable data includes an attack section and a loop section, said distributing component selecting said certain number of padding samples such that all samples of said loop section are included in a single 15 frame in case said loop section comprises less samples than a respective frame; and

20           an encoding component for encoding a sequence of frames provided by said distributing component.

- 25 9. A wavetable based sound synthesis system comprising:  
30           a storage component for storing encoded wavetable data;  
              an audio encoder for encoding received wavetable data on a frame-by-frame basis and for storing resulting wavetable data in said first storage component, each frame comprising more than one sample, wherein said wavetable data may comprise samples in an attack section and samples in a loop section and wherein samples of such a loop section

may be reused for a playback in a loop as often as required, which audio encoder includes a distributing component distributing, in this order, a certain number of padding samples, samples of an attack section of received wavetable data and samples of a loop section of received wavetable data to a sequences of frames, in case said received wavetable data includes an attack section and a loop section, said distributing component selecting said certain 5 number of padding samples such that all samples of said loop section are included in a single frame in case said loop section comprises less samples than a respective frame, and which audio encoder includes an encoding component for encoding a sequence of frames 10 provided by said distributing component; and  
an audio decoder decoding wavetable data received from said storage component on a frame-by-frame basis and providing decoded wavetable data for further processing for a playback.

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10. A software program product in which a software code for supporting a wavetable based sound synthesis is stored, for which wavetable based sound synthesis received wavetable data is encoded for storage by means of an audio encoder on a frame-by-frame basis, each frame comprising more than one sample, wherein 25 said wavetable data may comprise samples in an attack section and samples in a loop section, and wherein samples of such a loop section may be reused for a playback in a loop as often as required, said 30 software code realizing the following steps when running in a processing component of said audio encoder:

distributing, in this order, a certain number of padding samples, samples of an attack section of received wavetable data and samples of a loop section of received wavetable data to a sequences of frames,  
5 in case said received wavetable data includes an attack section and a loop section, said distributing component selecting said certain number of padding samples such that all samples of said loop section are included in a single frame in case said loop  
10 section comprises less samples than a respective frame; and

providing said sequence of frames to an encoding component of said audio encoder for encoding.

15 11. A method for use in a wavetable based sound synthesis for which wavetable data is encoded for storage by means of an audio encoder on a frame-by-frame basis, each frame comprising more than one sample, wherein said wavetable data comprises samples in an attack  
20 section and samples in a loop section, which samples in said loop section may be reused for a playback in a loop as often as required, said method comprising:

distributing said samples of said wavetable data to a sequences of frames;

25 extending said loop section periodically in order to fill up a last frame of said sequence of frames with the resulting samples; and

encoding said sequence of frames.

30 12. The method of claim 11, wherein for encoding a specific frame said audio encoder uses samples from a window exceeding said specific frame, and wherein said loop section is extended periodically to obtain more samples than required for filling up said last

frame, thereby providing samples for encoding said last frame based on samples from a window exceeding said last frame.

5    13. A device including an audio encoder for encoding received wavetable data on a frame-by-frame basis, each frame comprising more than one sample, wherein said wavetable data may comprise samples in an attack section and samples in a loop section and wherein  
10      samples of such a loop section may be reused for a playback in a loop as often as required, said audio encoder comprising:

      a distributing component distributing samples of received wavetable data to a sequences of frames and,  
15      in case said received wavetable data comprises a loop section, extending said loop section periodically in order to fill up a last frame of said sequence of frames with the resulting samples; and

20      an encoding component for encoding a sequence of frames provided by said distributing component.

14. A wavetable based sound synthesis system comprising:  
      a storage component for storing encoded wavetable data;

25      an audio encoder for encoding received wavetable data on a frame-by-frame basis and for storing resulting wavetable data in said first storage component, each frame comprising more than one sample, wherein said wavetable data may comprise  
30      samples in an attack section and samples in a loop section and wherein samples of such a loop section may be reused for a playback in a loop as often as required, which audio encoder includes a distributing component distributing samples of received wavetable

data to a sequences of frames and, in case said received wavetable data comprises a loop section, extending said loop section periodically in order to fill up a last frame of said sequence of frames with  
5 the resulting samples, and which audio encoder includes an encoding component for encoding a sequence of frames provided by said distributing component; and

10 an audio decoder decoding wavetable data received from said storage component on a frame-by-frame basis and providing decoded wavetable data for further processing for a playback.

15 15. A software program product in which a software code for supporting a wavetable based sound synthesis is stored, for which wavetable based sound synthesis received wavetable data is encoded for storage by means of an audio encoder on a frame-by-frame basis, each frame comprising more than one sample, wherein  
20 said wavetable data may comprise samples in an attack section and samples in a loop section, and wherein samples of such a loop section may be reused for a playback in a loop as often as required, said software code realizing the following steps when  
25 running in a processing component of said audio encoder:

distributing samples of received wavetable data to a sequences of frames;

30 in case said received wavetable data comprises a loop section, extending said loop section periodically in order to fill up a last frame of said sequence of frames with the resulting samples; and

providing said sequence of frames to an encoding component of said audio encoder for encoding.